UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295

SEP 06 1983

Ref: 8WM-DW

MEMORANDUM

TO: Victor J. Kimm, Director
Office of Drinking Water

SUBJECT: Summary of Agreements on Major/Minor UIC Aquifer Exemptions reached during June 27-28, 1983 meeting in Washinton, D.C.

This memorandum represents a summary of the workgroup discussion on aquifer exemptions and identifies the final agreements as to how exemptions will be processed. The following points outline the major agreements.

1. Definition of major/minor aquifer exemptions.

There was agreement that a major aquifer exemption would be any exemption of an aquifer containing less than 3,000 mg/liter which is:

a. Related to a Class I injection well;
b. Related to any injection not associated with a specific permit.

2. Process for review of major exemptions:

a. All exemption requests will be sent to the Chief of the Ground Water Protection Branch in the Office of Drinking Water as soon as it is received in the Region. A cover memorandum from the Region will outline Regional recommendations, review timeframes, and the Regional point of contact. This memorandum will include a summary of data related to the request. Attached is a draft summary sheet. An informational copy of the cover memorandum will be sent to the Director of the State Program Division in the Office of Drinking Water.

b. The Office of Drinking Water will assign a technical staff member to review the request and coordinate with other Headquarter's Offices.

c. After consultation with Headquarters, the Region will arrange for the public hearing and issue notice in the Federal Register. (ODW will provide coordinator to insure notice goes to Register in a timely manner.) The Region will publish notice in local papers.

d. The Region will submit its recommendations to Headquarters in the form of a memorandum to the Administrator from the Regional Administrator. All backup material including an analysis of the public participation process will be attached. This package will be sent to the Director of the State Program Division of ODW.

e. The final recommended action will be submitted to the Administrator in the form of an Action Memorandum from the Assistant Administrator.

3. Timeframe for approval of major aquifer exemptions.

The general consensus of the workgroup was that a major aquifer exemption could not be assigned a set time frame for final clearance. There was, however, consensus from the Regional workgroup members that ODW should commit to a set review time after submittal of the Region's final recommendations. This committment would only cover the time from Regional submittal to clearance out of ODW. The Regions believe that in all fairness, they must be able to respond to a State in a reasonable time period. It is also felt that states will want an indication on the approximate length of time a Headquarters review will take after completion of the Region review. There was no agreement on this issue.

4. Minor exemptions not requiring Headquarters concurrence.

It was agreed that the following exemptions would be considered minor and the approval authority would be delegated to the Region with no Headquarters concurrence:

a. Salt water disposal wells injecting into a producing/or previously produced horizon.

b. Enhanced Recovery Projects.

c. Salt water disposal wells into a non-producing horizon containing a total dissolved solids concentration of more than 3000 mg/liter.

See Exception of Attachment 2

5. Approval of minor Aquifer exemptions not requiring Headquarters concurrence.

These minor exemptions would be approved at the Regional level and would be subject to review during the yearly Regional evaluation. A copy of the exemptions request, a copy of the summary sheet (attachment one) and a copy of the Regional letter of approval or denial will be sent to Headquarters for information purposes.

6. Minor exemptions requiring Headquarters concurrence.

The final approval of these exemption requests would also be delegated to the Regions but Headquarters concurrence would be required. Exemptions requests requiring Headquarters concurrence are as follows:

a. Salt water disposal well into a non-producing zone containing a total dissolved solids content of less than 3000 mg/liter.

b. Class III injection projects.

c. Large areal exemptions not connected to a specific permit where the aquifer contains more than 3000 mg/liter total dissolved solids.

Several Regional members of the work group did not feel that Headquarters review of items a and b was warranted. They feel that this concurrence will add little if anything to the review and approval process and will make it difficult to meet the timeframes in many State specific MOA's.

7. Procedure for approval of all minor exemptions requiring Headquarters concurrence.

a. Regional enforcement personnel will be notified of all exemption requests to insure that no conflicts exist.

b. Copies of exemption requests will be sent to Headquarters upon receipt.

c. Exemption requests will be accompanied by a summary sheet. This will include the date that the Region must respond to the applicant or State concerning the request. The submittal will include the application for the exemption and any associated attachments.

d. Exemption requests will be sent to the Chief of the Groundwater Protection Branch. These requests will be accompanied by a cover memorandum requesting concurrence and identifying the Regional contract. A copy of this memorandum will be sent to the Director of the State Program Division.

e. The Ground Water Protection Branch will assign a technical staff person to review the request and to coordinate with other staff offices as deemed necessary by ODW.

f. Because of potential short time frames for approval, concurrence will be made by phone informally to be followed up with a formal memorandum from ODW.

8. Guidance for review of exemptions requests.

Attachment 2 is proposed guidance for the review of aquifer exemptions.

9. ODW Actions Needed

There are several actions which need to be made by the Office of Drinking Water prior to the delegation of authority for approving minor exemptions to the Regions. These actions should be completed within the next several months.

a. Decide on procedure for preparing the formal concurrence letter on minor exemptions. This should include the chain of concurrence and who signs the letter.

b. Re-examine the Regional request that ODW committ to a set time frame for review and clearance out of ODW of a final approval package for a major aquifer exemption.

c. Complete Delegations approval package and send to Administrator for approval.

d. Issue final guidance procuedures for Headquarters review and concurrence of exemptions based on workgroup recommendations.

e. Issue final guidance on the information needed to review an exemption request.

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For the Workgroup

cc: Delegations Work Group

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Delegations continued on next page

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All Regional Water Supply Branch Chiefs

Attachment

AQUIFER EXEMPTION
SUMMARY SHEET

Date application received in Region: _____

Date application sent the Headquarters: _____

Date action needed: _____

APPLICANT: _____

HEARING DATE: _____

I.D. NUMBER: _____

EXEMPTION DESCRIPTION (Township, Range, Section, Quarter section and of affected area):

FIELD: _____

AQUIFER TO BE EXEMPTED: _____

JUSTIFICATION FOR EXEMPTION:

( ) Aquifer is not a source of drinking water and will not serve as a source of drinking water in the future because it:

() Has a TDS level above 3,000

() Is hydrocarbon bearing

() Is too deep

() Is a Class III well subject to subsidence

() Is to contaminated (name contaminent(s)):

() Other: _____

_____

PURPOSE OF INJECTION: _____

_____

_____

INJECTED WATER QUALITY: _____ INJECTION WATER SOURCE: _____

FORMATION WATER QUALITY: _____

APPLICANT: _____

HEARING DATE: _____

I.D. NUMBER: _____

OIL OR MINERAL PRODUCTION HISTORY: _____

ACTIVE INJECTION WELLS INJECTING INTO SAME FORMATION:

Field	Location	Injection Interval	Injection Source	Total Depth

WATER USE IN AREA: _____

REMARKS: _____

ATTACHMENT 2

Proposed Guidance

TECHNICAL CRITERIA

FOR REVIEWING

AQUIFER EXEMPTION REQUESTS

BACKGROUND

The Consolidated Permits Regulations (40 CFR 146.04 and 122.35) allow EPA or approved State programs with Environmental Protection Agency (EPA) concurrence, to exempt underground sources of drinking water from protection under certain circumstances. An underground source of drinking water may be exempted if:

1. It does not currently serve as a source of drinking water and;

2. It cannot now and will not in the future serve as a source of drinking water because:

   (a) It is mineral, hydrocarbon, or geothermal energy producing, or it can be demonstrated by a permit applicant as a part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible;

   (b) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

   (c) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption, or;

   (d) It is located over a Class III well mining area subject to subsidence or catastrophic collapse, or;

3. The Total Dissolved Solids content of the groundwater is more than 3.000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

Regulations at 40 CFR 122.35(b)(1) state that "The Director may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite all aquifers or parts therefore which the Director proposes to designate as exempted aquifers ..." If an exemption is proposed under 40 CFR 146.04(b)(1), the applicant for a Class II or III injection well permit must submit information to demonstrate "commercial producibility". To demonstrate producibility, the applicant for a Class II injection well permit may provide a map and general description of the mining

zone, analysis of the amenability of the mining zone to the proposed mining method, and a production timetable. Applicants for an exemption for a Class II injection well may demonstrate producibility by providing information such as logs, core data, drill stem test information, a formation description, and oil production data for the well in question or surrounding wells.

Except as listed above, the regulations do not specify technical criteria for the EPA to judge aquifer exemption requests. The EPA has therefore developed the following technical criteria. These criteria include general information requirements common to all aquifer exemption requests. These are followed by specific criteria to evaluate each type of exemption request listed above.

EPA will approve aquifer exemptions for only specific purposes. All exemption request approvals will include a description of injection activities allowed and a statement that additional approvals would be needed for other injection activities (e.g., hazardous waste disposal into an aquifer exempted for mineral production).

EVALUATION CRITERIA

General

Applicants requesting exemptions must provide the following general information:

1. a topographic map of the proposed exempted area. The map must show the boundaries of the area to be exempted. Any map which precisely delineates the proposed exempted area is acceptable.

2. A written description of the proposed exempted aquifer including:

   (a) Name of formation or aquifer.

   (b) Subsurface depth or elevation of zone

   (c) Vertical confinement from other underground sources of drinking water.

   (d) Thickness of proposed exempted aquifer.

   (e) Area of exemption (e.g. acres, square miles, etc.).

   (f) A water quality analysis of the horizon to be exempted.

In addition to the above descriptive information concerning the aquifer, all exemption requests must demonstrate that the aquifer ". . . does not currently serve as a source of drinking water." (40 CFR 146.04(a)). To demonstrate

this, the applicant should survey the proposed exempted area to identify any water supply wells which tap the proposed exempted aquifer. The area to be surveyed should cover the exempted zone and a buffer zone outside the exempted area. The buffer zone should extend a minimum of a 1/4 mile from the boundary of the exempted area. Any water supply wells located should be identified on the map showing the proposed exempted area. If no water supply wells would be affected by the exemption, the request should state that a survey was conducted and no water supply wells were located which tap the aquifer to be exempted within the proposed area.

Specific Information

146.04(b)(1) It cannot now and will not in the future serve as a source of drinking water because: it is mineral, hydrocarbon, or geothermal energy producing or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commerically producible.

If the proposed exemption is to allow a Class II enhanced oil recovery well or an existing Class III injection well operation to continue, the fact that it has a history of hydrocarbon or mineral production will be sufficient proof that this standard is met. Many times it may be necessary to slightly expand an existing well field to recover minerals or hydrocarbons. In this case, the applicant must show only that the exemption request is for expanding the previously exempted aquifer and state his reasons for believing that there are commercially producible quantities of minerals within the expanded area. In the case of a hydrocarbon producing area, the applicant may show that the proposed injection well would be located within one-half mile of a producing well and that injection would be into the productive formation.

Applications for aquifer exemptions to allow new in-situ mining must demonstrate that the aquifer is expected to contain commercially producible quantities of minerals. Information to be provided may include: a summary of logging which indicates that commercially producible quantities of minerals are present, a description of the mining method to be used, general information on the mineralogy and geochemistry of the mining zone, and a development timetable. The applicant may also identify nearby projects which produce from the formation proposed for exemption.

Many Class III injection well permit applicants may consider much information concerning production potential to be proprietary. As a matter of policy, some States do not allow any information submitted as part of a permit application to be confidential. In those cases where potential production information is not being submitted, it may be necessary for EPA to participate with the State in discussions with the applicant to obtain sufficient evidence to indiacte that the ore zone is commercially producible. The information to be discussed would include the results of any R and D pilot project.

Exemptions relating to any new Class II wells which will be injecting into a producing or previously produced horizon should include the followint types of information.

a. Production history of the well if it is a former production well which is being converted.

b. Description of any drill stem tests run on the horizon in question. The should include information on the amount of oil and water produced during the test.

c. Production history of other wells in the vicinity which produce from the horizon in question.

d. Description of the project, if it is an enhanced recovery operation including the number of wells and their location.

145.04(b)(2) It cannot now and will not in the future serve as a source of drinking water because: It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical:

EPA consideration of an aquifer exemption request under this provision would turn on a comparison of the costs of developing the proposed exempted aquifer with costs of developing more readily available water supply sources.

The economic evaluation, submitted by the applicant, will consider:

1. Distance from the proposed exempted aquifer to public water supplies.

2. Current sources of water supply for potential users of the proposed exempted aquifer. who are the users? Farms? more than — est.

3. Availability and quality of alternative water supply sources.

4. Analysis of future water supply needs within the general area.

5. Depth of proposed exempted aquifer.

6. Quality of the water in the proposed exempted aquifer.

7. Costs to develop the proposed exempted aquifer as a water supply source including any treatment costs and costs to develop alternative water supplies. This should include costs for well construction, transportation, water treatment, etc. for each source.

146.04(b)(3) It cannot now and will not in the future serve as a source of drinking water because: It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption.

Economic considerations would also weigh heavily in EPA's evaluation of aquifer exemption requests under this section. However, unlike the previous section, the economics involved would be controlled by the cost of technology to render water fit for human consumption. Treatment methods can usually be applied to render water potable. However, costs of that treatment may often be prohibitive either in absolute terms or when compared to cost to develop alternative water supplies.

EPA's evaluation of aquifer exemption request under this section will consider the following information submitted by the applicant:

1. Concentrations and types of contaminants in the aquifer.
2. Source of contamination.
3. Whether the contamination source has been abated.
4. Extent of contaminated area.
5. Probability that the contaminant plume will pass the proposed exempted area.
6. Possibility and cost of aquifer restoration.
7. Availability of treatment to remove contaminants from water.
8. Chemical content proposed of injected fluids.
9. Current water supply in the area.
10. Alternative water supplies.
11. Costs to develop current and probably future water supplies, and cost to develop water supply from proposed exempted aquifer. This should include well construction costs, transportation costs, water treatment costs, etc.
12. Projections on future use of the proposed aquifer.

146.04 (b)(4) It cannot now and will not in the future serve as a source of drinking water because: It is located over a Class III mining area subject to subsidence or catastrophic collapse:

An aquifer exemption request under this section should discuss the proposed mining method and why that method is subject to subsidence or catastrophic

collapse. The possibility that non-exempted underground sources od drinking water would be contaminated due to the collapse should should also be addressed in the application.

146.04 (c) The Total Dissolved Solids content of the groundwater is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

An application under this provision must include information about the quality and availability of water from the aquifer proposed for exemption. Also, the exemption request must analyze the potential for public water supply use of the aquifer. This may include: a description of current sources of public water supply in the area, a discussion of the adequacy of current water supply sources to supply future needs, population projections, economy, future technology, and a discussion of other available water supply sources within the area.